



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/624,357

07/21/2003

Aaron Scott Lukas

06381P USA

7231

23543

7590

07/12/2005

AIR PRODUCTS AND CHEMICALS, INC.
PATENT DEPARTMENT
7201 HAMILTON BOULEVARD
ALLENTOWN, PA 181951501

EXAMINER

BEREZNY, NEMA O

ART UNIT

PAPER NUMBER

2813

DATE MAILED: 07/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/624,357

Applicant(s)

LUKAS ET AL.

Examiner

Nema O. Berezny

Art Unit

2813

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 May 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) 1-29 and 32-37 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 30 and 31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office Action is in response to Applicant's Response filed 5-27-05, which has been entered and considered. Claims 1-37 are currently pending, with claims 1-29 and 32-37 withdrawn.

Election/Restrictions

Applicant's election with traverse of claims 30-31 in the reply filed on 5-27-05 is acknowledged. The traversal is on the ground(s) that there would not be a serious burden to examine all of the claims. This is not found persuasive because as stated in the restriction, additional class/subclass searches would be required for the additional groups. In addition, even if the groups are related and the searches for the different groups would overlap, there would clearly be additional searching for 37 claims versus searching for 2 claims.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 30-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mandal (2002/0142585) in view of Waldfried ("Single Wafer RapidCuring"). Mandal

Art Unit: 2813

discloses a mixture for depositing an organosilicate film comprising a dielectric constant of 3.5 or below, the mixture comprising at least one structure-former precursor selected from the group consisting of an organosilane and an organosiloxane (p.3 para.29, 32-33) and a pore-former precursor (p.4 para.36). However, Mandal does not disclose said film exhibiting an absorbance of 200 to 400 nm wavelength. Mandal would look to one such as Waldfried for a porous low-k film because Waldfried discloses wherein it is implied that at least one precursor and/or the organosilicate film exhibits an absorbance in the 200 to 400 nm wavelength range (p.226 Exp. Para.1). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to use the absorbance of Waldfried with the mixture of Mandal. The mixture of Mandal provides improved low-k material properties, and reduced process times and process temperatures (Waldfried – Abstract) **[claim 30]**. Mandal also discloses a mixture for depositing an organosilicate film, the mixture comprising: from 5 to 95% by weight of a structure-former precursor selected from the group consisting of an organosilane and an organosiloxane and from 5 to 95% by weight of a pore-former precursor (p.3 para.29, 32-33; p.4 para.36; p.5 para.44-46).). However, Mandal does not disclose said film or precursor exhibiting an absorbance of 200 to 400 nm wavelength. Mandal would look to one such as Waldfried for a porous low-k film because Waldfried discloses wherein at least one of the precursors and/or the organosilicate film exhibits an absorbance in the 200 to 400 nm wavelength range (p.226 Exp. Para.1). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to use the absorbance of Waldfried with the mixture of Mandal. The mixture of Mandal provides

improved low-k material properties, and reduced process times and process temperatures (Waldfried – Abstract) **[claim 31]**.

Response to Arguments

Applicant's arguments filed 5-27-05 have been fully considered but they are not persuasive. Applicant contends that Waldfried teaches that the claimed films are exposed to a UV light source with spectral wavelength distributions ranging from 180 nm to 400 nm, and therefore, Waldfried fails to disclose a precursor and/or an organosilicate film that exhibits an absorbance in the 200 to 400 nm wavelength range. Examiner disagrees. If a film is exposed to a particular exposure wavelength range, then it is implied that the film(s) being exposed is absorbing said exposure wavelength range. This is supported by Applicant's specification on p.26 para.89, where UV exposure is made by an ultraviolet lamp, which provides radiation ranging from 200 to 450 nm. Applicant also discloses in said specification on p.23-24 para.79 that an organosilicate film mixture of 5% to 95% structure-former precursor and 5% to 95% pore-former precursor exhibits an absorbance in the 200 to 400 nm wavelength range.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within

Art Unit: 2813


TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nema O. Berezny whose telephone number is (571) 272-1686. The examiner can normally be reached on M-F 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead, Jr. can be reached on (571) 272-1702. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

NB


CRAIG A. THOMPSON
PRIMARY EXAMINER